2016

Test 2156: New Holland TS6.110

Nebraska Tractor Test Laboratory
University of Nebraska-Lincoln, tractortestlab@unl.edu

NEBRASKA OECD TRACTOR TEST 2156–SUMMARY 1037
NEW HOLLAND TS6.110 DIESEL
8 SPEED

Chassis serial numbers NT00001M and higher

POWER TAKE-OFF PERFORMANCE

Power HP *(kW)*	Crank shaft speed rpm	Diesel Consumption Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	D.E.F. Consumption Hp.hr/gal *(kW.h/l)*	D.E.F. Consumption Gal/hr *(l/h)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—630 rpm)						
92.57 *(69.03)*	2201	5.90 *(22.32)*	0.446 *(0.272)*	15.70 *(3.09)*	0.40 *(1.50)*	
Standard Power Take-off Speed (539 rpm)						
94.56 *(70.51)*	1890	5.42 *(20.50)*	0.402 *(0.244)*	17.46 *(3.44)*	0.37 *(1.38)*	
Maximum Power (1 hour)						
94.93 *(70.79)*	1750	5.22 *(19.76)*	0.385 *(0.234)*	18.18 *(3.58)*	0.32 *(1.21)*	
VARYING POWER AND FUEL CONSUMPTION						
92.57 *(69.03)*	2201	5.90 *(22.32)*	0.446 *(0.272)*	15.70 *(3.09)*	0.40 *(1.50)*	Air temperature
79.84 *(59.53)*	2238	5.36 *(20.30)*	0.471 *(0.286)*	14.89 *(2.93)*	0.34 *(1.30)*	75°F *(24°C)*
60.86 *(45.38)*	2267	4.57 *(17.28)*	0.526 *(0.320)*	13.33 *(2.63)*	0.27 *(1.01)*	Relative humidity
41.15 *(30.68)*	2299	3.75 *(14.18)*	0.638 *(0.388)*	10.99 *(2.16)*	0.21 *(0.81)*	78%
20.84 *(15.54)*	2320	3.05 *(11.55)*	1.026 *(0.624)*	6.38 *(1.35)*	0.12 *(0.45)*	Barometer
1.69 *(1.26)*	2344	2.25 *(8.53)*	9.334 *(5.678)*	0.75 *(0.15)*	0.08 *(0.30)*	28.94" Hg *(98.00 kPa)*

Maximum torque - 348 lb.-ft. *(472 Nm)* at 1249 rpm
Maximum torque rise - 57.7%
Torque rise at 1760 engine rpm - 29%
Power increase at 1750 engine rpm - 2.5%

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE ENGAGED
FUEL CONSUMPTION CHARACTERISTICS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	D.E.F Consumption lb/hp.hr *(kg/kW.h)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Power at Rated Engine Speed—5th (H1) Gear										
80.30 *(59.88)*	5166 *(22.98)*	5.83 *(9.38)*	2200	5.6	0.513 *(0.312)*	13.68 *(2.69)*	NA *(NA)*	183 *(84)*	75 *(24)*	28.90 *(97.87)*
75% of Pull at Rated Engine Speed—5th (H1) Gear										
62.74 *(46.78)*	3873 *(17.23)*	6.08 *(9.78)*	2249	3.8	0.567 *(0.345)*	12.36 *(2.43)*	0.042 *(0.026)*	183 *(84)*	78 *(26)*	28.92 *(97.93)*
50% of Pull at Rated Engine Speed—5th (H1) Gear										
43.24 *(32.24)*	2587 *(11.51)*	6.27 *(10.09)*	2284	2.2	0.680 *(0.414)*	10.31 *(2.03)*	0.055 *(0.034)*	183 *(84)*	79 *(26)*	28.91 *(97.90)*
75% of Pull at Reduced Engine Speed—6th (H2) Gear										
62.81 *(46.84)*	3879 *(17.25)*	6.08 *(9.78)*	1458	3.7	0.439 *(0.267)*	15.97 *(3.15)*	0.044 *(0.027)*	180 *(82)*	80 *(27)*	28.93 *(97.97)*
50% of Pull at Reduced Engine Speed—6th (H2) Gear										
43.21 *(32.22)*	2565 *(11.41)*	6.32 *(10.16)*	1494	2.1	0.492 *(0.299)*	14.24 *(2.81)*	0.050 *(0.030)*	179 *(82)*	79 *(26)*	28.91 *(97.90)*

Location of tests: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln Nebraska 68583-0832
Dates of tests: August 30 to September 7, 2016

Manufacturer: CNH De Mexico, Queretaro Mexico

CONSUMABLE Fluids, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F *(15°/15°C)*** 0.8418 **Fuel weight** 7.009 lbs/gal *(0.840 kg/l)* **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.071 lbs/gal *(1.087 kg/l)* **Oil SAE** 10W30 **API service classification** CJ-4 **Transmission, hydraulic and front axle lubricant** New Holland Ambra Multi G134 fluid **Total time engine was operated** 16.5 hours

ENGINE: Make F.P.T NEF Diesel **Type** Four cylinder vertical with turbocharger, air to air intercooler and D.E.F. (diesel exhaust fluid) exhaust treatment **Serial No.** 001388393 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.094" x 5.197" *(104.0 mm x 132.0 mm)* **Compression ratio** 17.0 to 1 **Displacement** 274 cu in *(4485 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Exhaust** DOC (diesel oxidation catalyst) and SCR (selective catalyst reduction) integrated within a vertical muffler **Cooling medium temperature control** one thermostat

ENGINE OPERATING PARAMETERS: Fuel rate: 38.5 - 41.7 lb/h *(17.5 - 18.9 kg/h)* **High idle:** 2325 - 2375 rpm **Turbo boost:** nominal 16.7- 19.6 psi *(115 - 135 kPa)* as measured 18.2 psi*(125 kPa)*

CHASSIS: Type front wheel assist **Serial No.** NT01005M **Tread width** rear 64.0" *(1625 mm)* to 78.0" *(1981 mm)* front 64.0" *(1625 mm)* to 66.0" *(1676 mm)* **Wheelbase** 99.3" *(2521 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph *(km/h)*** first 1.67 *(2.68)* second 2.56 *(4.12)* third 3.48 *(5.60)* fourth 4.83 *(7.77)* fifth 6.14 *(9.88)* sixth 9.45 *(15.21)* seventh 12.83 *(20.65)* eighth 17.82 *(28.68)* reverse 1.72 *(2.77)*, 2.65 *(4.26)*, 3.60 *(5.79)*, 5.00 *(8.04)*, 6.35 *(10.22)*, 9.77 *(15.73)*, 13.27 *(21.36)*, 18.43 *(29.66)* **Clutch** single dry disc operated by foot pedal **Brakes** single wet disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1890 engine rpm or 1000 rpm at 2049 engine rpm **Unladen tractor mass** 10245 lb *(4647 kg)*

DRAWBAR PERFORMANCE

UNBALLASTED - FRONT DRIVE ENGAGED
MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	D.E.F Consumption lb/hp.hr *(kg/kW.h)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
					3rd (L3) Gear					
68.02 *(50.72)*	8485 *(37.74)*	3.01 *(4.84)*	2216	14.8	0.592 *(0.360)*	11.85 *(2.33)*	0.052 *(0.032)*	184 *(84)*	80 *(27)*	28.90 *(97.87)*
					4th (L4) Gear					
77.74 *(57.97)*	6547 *(29.12)*	4.45 *(7.16)*	2200	8.7	0.529 *(0.322)*	13.24 *(2.61)*	NA *(NA)*	183 *(84)*	73 *(23)*	28.90 *(97.87)*
					5th (H1) Gear					
80.30 *(59.88)*	5166 *(22.98)*	5.83 *(9.38)*	2200	5.6	0.513 *(0.312)*	13.68 *(2.69)*	NA *(NA)*	183 *(84)*	75 *(24)*	28.90 *(97.87)*
					6th(H2) Gear					
79.47 *(59.26)*	3231 *(14.37)*	9.23 *(14.85)*	2200	3.0	0.517 *(0.315)*	13.55 *(2.67)*	NA *(NA)*	183 *(84)*	76 *(25)*	28.90 *(97.87)*

UNBALLASTED - FRONT DRIVE ENGAGED-1750 ENGINE RPM

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	D.E.F Consumption lb/hp.hr *(kg/kW.h)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
					3rd (L3) Gear					
68.08 *(50.76)*	8478 *(37.71)*	3.02 *(4.85)*	2215	14.6	0.592 *(0.360)*	11.85 *(2.33)*	0.043 *(0.026)*	184 *(84)*	81 *(27)*	28.91 *(97.90)*
					4th (L4) Gear					
78.44 *(58.49)*	7005 *(31.16)*	4.20 *(6.76)*	2100	9.5	0.518 *(0.315)*	13.54 *(2.67)*	0.047 *(0.029)*	183 *(84)*	73 *(23)*	28.90 *(97.87)*
					5th (H1) Gear					
81.16 *(60.52)*	6164 *(27.42)*	4.94 *(7.95)*	1900	7.4	0.471 *(0.287)*	14.88 *(2.93)*	0.039 *(0.024)*	182 *(83)*	76 *(24)*	28.91 *(97.90)*
					6th(H2) Gear					
81.53 *(60.80)*	4222 *(18.78)*	7.24 *(11.65)*	1750	4.5	0.447 *(0.272)*	15.67 *(3.09)*	0.043 *(0.026)*	181 *(83)*	72 *(25)*	28.92 *(97.93)*

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Engaged dB(A)	Disengaged dB(A)
At no load in 4th (4L) gear	79.9	79.9
Bystander in 8th (4H) gear		86.7

TIRES AND WEIGHT	Tested Without Ballast
Rear Tires - No., size, ply & psi*(kPa)*	Two 18.4-34;8;16*(110)*
Front Tires - No., size, ply & psi*(kPa)*	Two 14.9-24;6;16*(110)*
Height of Drawbar	21.0 in *(535 mm)*
Static Weight with operator - Rear	6120 lb *(2776 kg)*
- Front	4300 lb *(1950 kg)*
- Total	10420 lb *(4726 kg)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE: The performance figures on this report apply to tractors with chassis serial numbers NT00001M and higher.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. This tractor did not meet the manufacturer's implement flow claims of 13 GPM *(49 l/min)* nor 22 GPM *(83 l/min)* with dual pump system. The manufacturer's 3 point lift claims of 3735 lb *(1693 kg)*, 5499 lbs *(2499 kg)* (with 1 external lift cylinder) and 7326 lb *(3323 kg)* (with 2 external lift cylinders) were not met when tested per OECD Code 2 standards. The performance figures on this summary were taken from a test conducted under the OECD Code 2 test procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2156**, Nebraska Summary 1037, March 3, 2017.

Roger M. Hoy
Director

M.F. Kocher
P.J. Jasa
J.D. Luck
Board of Tractor Test Engineers

The 3 point lift performance figures listed below are from tests conducted on the New Holland TS6030 Diesel

HYDRAULIC PERFORMANCE

CATEGORY: II
Quick Attach: None
OECD Static test
Maximum force exerted through whole range: 3096 lbs *(13.77 kN)*
4608 lbs *(20.50 kN)*(1 external lift cylinder)
6174 lbs *(27.46 kN)*(2 external lift cylinders)

	Single pump system	Two pump system
	two outlet sets combined	
i) Sustained pressure of the open relief valve:	2620 psi *(181 bar)*	2772 psi *(191 bar)*
ii) Pump delivery rate at minimum pressure and rated engine speed:	12.4 GPM *(47.1 l/min)*	19.1 GPM *(72.1 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	10.2 GPM *(38.6 l/min)*	14.6 GPM *(55.4 l/min)*
Delivery pressure:	2268 psi *(156 bar)*	2190 psi *(151 bar)*
Power:	13.5 HP *(10.1 kW)*	18.7 HP *(13.9 kW)*
	single outlet set	
i) Sustained pressure of the open relief valve:	2646 psi *(182 bar)*	2760 psi *(190 bar)*
ii) Pump delivery rate at minimum pressure and rated engine speed:	12.3 GPM *(46.7 l/min)*	18.1 GPM *(68.4 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	10.0 GPM *(37.9 l/min)*	13.9 GPM *(52.7 l/min)*
Delivery pressure:	2223 psi *(153 bar)*	2070 psi *(143 bar)*
Power:	13.0 HP *(9.7 kW)*	16.8 HP *(12.5 kW)*

THREE POINT HITCH PERFORMANCE(SAE Static test)

Observed maximum pressure psi. *(bar)* 2480 *(171)*
Location: lift cylinder
Hydraulic oil temperature: °F *(°C)* 145 *(63)*
Location: pump inlet
Category: II
Quick attach: none

System pressure 2210 psi *(152 Bar)*

Hitch point distance to ground level in. *(mm)*	8.0 *(203)*	15.0 *(381)*	22.0 *(559)*	29.0 *(737)*	36.0 *(914)*
Lift force on frame lb	4374	4244	4127	4257	3735
" " " " " " *(kN)*	*(19.5)*	*(18.9)*	*(18.4)*	*(18.9)*	*(16.6)*

One external lift cylinder

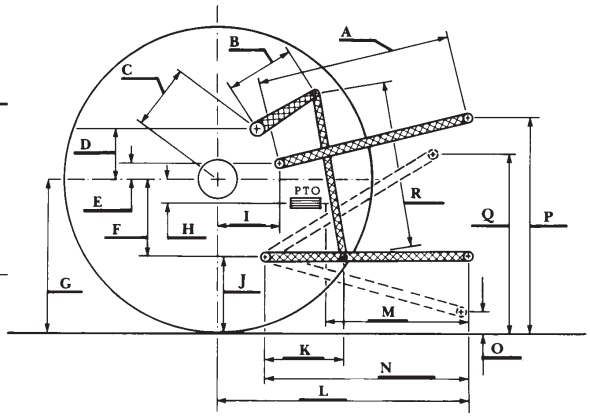
System pressure 2210 psi *(152 Bar)*

Hitch point distance to ground level in. *(mm)*	8.0 *(203)*	15.0 *(381)*	22.0 *(559)*	29.0 *(737)*	36.0 *(914)*
Lift force on frame lb	6764	6444	6174	6300	5499
" " " " " " *(kN)*	*(30.1)*	*(28.7)*	*(27.5)*	*(28.0)*	*(24.5)*

Two external lift cylinders

System pressure 2210 psi *(152 Bar)*

Hitch point distance to ground level in. *(mm)*	8.0 *(203)*	15.0 *(381)*	22.0 *(559)*	29.0 *(737)*	36.0 *(914)*
Lift force on frame lb	9270	8622	8199	8361	7326
" " " " " " *(kN)*	*(41.2)*	*(38.4)*	*(36.5)*	*(37.2)*	*(32.6)*



HITCH DIMENSIONS AS TESTED—NO LOAD

	SAE Test		OECD Test	
	inch	*mm*	inch	*mm*
A	27.7	*705*	28.5	*724*
B	9.8	*250*	9.8	*250*
C	14.1	*357*	14.1	*357*
D	13.5	*342*	13.5	*342*
E	8.1	*205*	8.1	*205*
F	9.0	*229*	9.0	*229*
G	30.3	*770*	30.3	*770*
H	0.4	*10*	0.4	*10*
I	12.7	*323*	12.7	*323*
J	21.3	*541*	21.3	*541*
K	18.1	*460*	18.1	*460*
L	40.8	*1037*	40.8	*1037*
M	22.9	*581*	22.9	*581*
N	36.6	*930*	36.6	*930*
O	8.0	*203*	8.0	*203*
P	40.3	*1024*	45.3	*1151*
Q	34.0	*864*	34.0	*864*
R	32.5	*826*	32.5	*826*

NEW HOLLAND TS6.110 DIESEL

Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln